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Circular Letters:



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Aureomycin in the Treatment of Penicillin-Resistant Staphylococcic Bacteremia: An increasing number of infections are being caused by strains of Staphylococcus aureus which are resistant to penicillin but sensitive to aureomycin. The observations of Barber and her co-worker in England indicate that, among proved staphylococcic infections, the incidence of strains of staphylococci which are resistant to penicillin has been increasing rapidly. Prior to 1944, only a very few strains of penicillin-resistant staphylococci were encountered. However, in 1944, Spink and associates reported that 12 percent of 68 strains of staphylococci examined were found to be resistant to penicillin; from 0.4 to 0.8 of an Oxford unit was required to inhibit growth completely. Other investigators found a similar incidence. In 1946, Barber found that 14.1 percent of the strains which she examined, derived from a single hospital, were penicillin-resistant. In June 1947, the incidence of penicillin-resistant strains in this same hospital had increased to 38 percent, and by June 1948, the incidence was 59 percent.

During a period of 44 days, extending from 7 December 1948 to 20 January 1949, an attempt was made to isolate strains of Staph. aureus from all clinical materials submitted to the Laboratory of Clinical Bacteriology of the Mayo Clinic. Of the total of 50 strains of Staph. aureus which were isolated, 34 required more than 1.6 Oxford units of penicillin per cubic centimeter of culture medium to inhibit their growth and therefore were considered penicillin resistant. In addition, growth of 14 of these 34 penicillin-resistant strains was not inhibited by 25 micrograms of streptomycin per cubic centimeter of culture medium. All 34 penicillin-resistant strains were found to be sensitive to as little as 0.78 microgram of aureomycin per cubic centimeter of culture medium.

During the year 1948, 15 patients at the Mayo Clinic were found to have staphylococcic bacteremia. Twelve of the 15 strains of staphylococci isolated from these patients were resistant to 1.6 Oxford units or more of penicillin per cubic centimeter of culture medium. In addition, 3 of the 15 strains were resistant to 25 micrograms or more of streptomycin per cubic centimeter of culture medium. Growth of all staphylococci which have been isolated from patients with bacteremia during recent months has been inhibited by 0.78 microgram of aureomycin per cubic centimeter on initial isolation.

The authors have used aureomycin in the treatment of a group of patients suffering from infections caused by penicillin-resistant staphylococci. Six of these patients were suffering from staphylococcic bacteremia. Of these, 4 recovered. The condition of the two patients who did not recover improved markedly when aureomycin was first administered. In both cases the blood cultures became negative and the temperature became normal. In one of these two patients the blood culture remained negative for 26 days after administration

of aureomycin had been discontinued. When a positive blood culture again was obtained, studies of sensitivity revealed that 3.2 micrograms of aureomycin now were required to inhibit the growth of the organism, a definite increase in amount over the 0.78 microgram previously required. This suggests that the organism may have developed resistance to aureomycin while the patient was being treated. However, the possibility that the relapse was attributable to reinfection by a different strain of staphylococcus cannot entirely be excluded. The other patient who did not recover gave evidence suggestive of bacterial endocarditis before treatment had been started, and bacterial vegetations were found on the mitral valve at postmortem examination. When bacterial endocarditis develops in the course of staphylococcic bacteremia, the prognosis always has been extremely grave. Because of a limited supply of aureomycin at the time, the authors were unable to continue administration of the antibiotic for longer than 11 days. Perhaps the bacteremia might have been cured if administration of the antibiotic had been continued longer or had been in larger doses.

Intermittent intravenous administration was used at the onset of treatment in 4 of the 6 cases of bacteremia. A dose of from 200 to 500 mg. in 250 cc. of physiologic saline solution was administered once every 4 hours, every 6 hours or every 12 hours. The solution was allowed to run into the vein fairly rapidly - from 10 to 15 minutes usually being allowed for the injection. Due to the fact that aureomycin in physiologic saline solution is somewhat acid, some venous irritation often was encountered. Serious complications, or more than minimal discomfort to the patients, did not result. Because of the advisability of obtaining high concentrations of the antibiotic in the blood as rapidly as possible in cases of bacteremia, and because of the vomiting which often results when large doses are administered by mouth, the authors felt that the intravenous method of administration was preferable, at least at the onset of treatment. Toxic effects on the bone marrow or kidneys were not noted when the intravenous method of administration was used.

The oral method of administration was used alone in 2 of the 6 cases and to complete the course of treatment in the other 4 cases. The dose of 500 mg., 750 mg., or 1 Gm. was administered orally every 4 or every 6 hours. Nausea and vomiting were encountered in 3 of the cases when this method of administration was used. When a dose of 750 mg. was administered every 6 hours, the maximal concentration of aureomycin was 8 micrograms per cubic centimeter of serum. The average content of aureomycin 6 hours after the last dose varied between 2 and 4 micrograms per cubic centimeter of serum. Vitamin supplements were administered either orally or intramuscularly when the patient received aureomycin for a prolonged period. All of these 6 patients with bacteremia had failed to respond to other forms of chemotherapy before aureomycin was used, and all had received penicillin in dosages ranging from 300,000 to 1,000,000 units daily. Four of the patients had received streptomycin in a dosage of 2 Gm. daily. Three of the patients had received small doses of

sulfonamides. Therefore, the response of these 6 patients to aureomycin was most encouraging. Furthermore, the allergic reactions to penicillin which occasionally are encountered complicate the treatment of bacteremia. A few patients are so sensitive to penicillin that its administration is definitely contraindicated. If these patients have severe staphylococcic infections, use of aureomycin in preference to penicillin may be advisable.

Because of the investigative nature of this study, use of aureomycin was not started until late in the course of the infection. Results were not entirely satisfactory. Successful treatment of staphylococcic bacteremia always has been dependent on administration of an effective chemotherapeutic agent as early in the course of the infection as possible. It is believed that in the future, when aureomycin is administered early in the course of staphylococcic bacteremia, a higher percentage of cures may well be anticipated. The authors do not advocate the use of aureomycin as a routine in the treatment of staphylococcic bacteremia. However, they feel that, when a patient is found to be suffering from staphylococcic bacteremia, studies in vitro should be instituted immediately to determine the sensitivity of the organism to different antibiotics. If the organism is found to be resistant to penicillin but sensitive to aureomycin, or, if the infection does not respond to penicillin, then aureomycin would appear to be the drug of choice.

It is emphasized that the increase in resistance with which this paper is concerned has been demonstrated only in infections due to Staph. aureus in certain hospitals. At present, evidence is not available that the incidence of penicillin-resistant strains among other organisms is increasing. (Proc. Staff Meet., Mayo Clin., 8 June '49, D. R. Nichols and G. M. Needham)

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The Electroencephalogram After Head Injury: There is general agreement that cerebral trauma usually produces electroencephalographic alterations which are related to the severity of the injury, and also to the time since the injury. It has even been possible on a basis of the electroencephalogram to make certain prognostications concerning the future clinical course of patients with head injury. In World War II the electroencephalogram was a great aid in determining when a patient with a head injury might be returned to full duty.

Because many patients develop seizures following a penetrating head injury, considerable attention has been directed to the problem of determining the electroencephalographic pattern to be associated with this complication. It has been pointed out that such patients have fairly characteristic electroencephalographic paroxysmal abnormalities. Some workers believe it is almost always possible to predict the occurrence of seizures in patients with head injury on a basis of such paroxysmal abnormalities, although Jasper and Penfield caution that "the EEG cannot be depended upon, however, to predict the developmental course of a potentially epileptogenic lesion of the brain, inasmuch as regressive as well as progressive lesions are encountered."

When the patient with head injury has actually become epileptic, the electroencephalogram has been used as a guide to therapy, by aiding the neurosurgeon in localizing the epileptogenic focus.

Some 241 cases of post-traumatic epilepsy constitute the major portion of this study which was carried out at Cushing General Hospital in Framingham, Mass., the post-traumatic epilepsy center of the United States Army. Electroencephalograms were taken on these patients with two four-channel Grass machines, either independently operated or connected in tandem for simultaneous eight-channel recording. The majority of patients had more than one recording made, and all had at least one. All routine tests included careful localization studies with both head-to-ear and head-to-head electrode selections. Usually, in addition to standard frontal, parietal, temporal, and occipital leads, extra electrodes were placed over and around (in rosette fashion) the area of skull injury. Each test included at least 3 minutes of vigorous hyperventilation. In addition to the routine tests, 106 patients had metrozol-activated electroencephalograms. The ages in this group ranged between 19 and 42 with the average age 27.3 years.

For purposes of comparison, a series of patients with severe head injury but without seizures were grouped on a basis of electroencephalograms already taken at Cushing General Hospital. The clinical records in these cases were carefully screened to assure (1) that the patients had never had seizures, and (2) that they all had had penetrating head injuries. Most of these 83 patients had been studied electroencephalographically using only one four-channel Grass machine but the technic of localization was similar to that used in the post-traumatic epilepsy cases. These patients had not been activated with metrazol. The age of this group ranged from 19 to 38 with an average age of 25.7.

Of the epileptic patients 91.3 percent and of the nonepileptic ones 77.1 percent had abnormal tracings. The maximum abnormality was restricted to a relatively small area of one hemisphere in 83.8 percent and 67.5 percent, respectively. The most common focal abnormality in both groups was the presence of slow waves, but this was one and a half times as frequent in the epileptic (73 percent) as in the nonepileptic (48.2 percent) patients. Paroxysmal (spiking) abnormalities were present in only about one fifth of the cases, and there was no significant difference between the epileptic and the nonepileptic cases in this regard. It would seem, therefore, that it cannot be discerned by study of the EEG whether a patient with a severe head injury has or will have epilepsy.

About 90 percent of the head injuries were unilateral, and in most cases were left sided (57.8 percent of the nonepileptic, 52.7 percent of the epileptic patients). In every case but one the focal electroencephalographic abnormalities

were on the side of injury. In almost 40 percent of the cases with bilateral injury, the electroencephalographic abnormality was unilateral.

In a series of 106 post-traumatic epileptic patients, in whom an attempt was made to activate the epileptogenic focus by the administration of metrazol, satisfactory focal activation was obtained in 67.9 percent of the cases, repeated testing being more efficient than just one test. The focal electroencephalographic alterations induced by metrazol were paroxysmal in 88.9 percent of the positive cases. Intravenous administration was more effective than intramuscular injections of metrazol. Clinical seizures occurred in approximately 15 percent of cases, but not if anticonvulsant medication was given before the test.

In 39 cases the cerebral cortex was explored, at which time the locus of the activated focus was confirmed by either metrazol or electrical activation. Several technics were employed to remove the foci with or without the scar.

Routine electroencephalograms were made on 34 patients 3 months after operation. Of these only 14.7 percent had paroxysmal abnormalities, whereas before operation 41.2 percent had had paroxysmal abnormalities.

Activated electroencephalograms were obtained on 29 patients 3 months after operation. Of these 51.7 percent showed no response to metrazol, whereas before operation 82.7 percent of these patients had had focal electroencephalographic alterations. Activated electroencephalography appears to be a useful diagnostic aid in determining the type of seizure, the location of the focus and possibly the prognosis in post-traumatic epilepsy. (J. Nerv. and Ment. Dis., May '49, I. C. Kaufman and A. E. Walker)

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Occurrence of Complications in Scarlet Fever Treated with Penicillin, Antitoxin and Gamma Globulin: Previous experience in 1944-1945 with gamma globulin as a therapeutic agent in scarlet fever indicated that this product of human blood was useful in combating the acute phase of the disease and in preventing early and late complications. It was felt, however, that further and more carefully controlled studies on the comparative value of gamma globulin, scarlet fever streptococcus antitoxin U. S. P., and penicillin should be made. This paper represents the results of such a study on 245 patients with scarlet fever at the Willard Parker Hospital during 1945 and 1946. Of these patients, the illness of 93 was graded as mild, that of 127 as moderate, and that of 18 as severe. No patient who did not have a culture of material from the throat yielding hemolytic (beta) streptococci was included in the study. Only 18 percent of the throat cultures of the patients treated with gamma globulin had become negative for the organism on discharge, as compared with 46 percent in the group treated with penicillin and 65 percent in the group treated

with antitoxin. These figures indicate that if gamma globulin is effective it is not bactericidal.

On their admission to the hospital the subjects included in the study were treated strictly in rotation. Any patient already having a complication was not selected. Those receiving gamma globulin were given 60 cc. intramuscularly soon after arrival in the ward. Those receiving penicillin were given that antibiotic in amounts of 15,000 units on admission and then 15,000 units intramuscularly every 3 hours for 10 days. Members of the third group received 9,000 units of scarlet fever streptococcus antitoxin U. S. P. soon after their admission. Each of these patients was then studied during convalescence. A group conference was held on each patient, and the effects of the respective drugs in the relief of symptoms and signs were evaluated and charted. The follow-up observation on these patients lasted 3 months. For all subjects in whom late complications, nephritis and rheumatic fever, were suspected, an electrocardiogram was taken, the sedimentation rate was determined, and urinalyses and blood pressure tests were made. Late complications were arbitrarily judged as those appearing after the fourteenth day of hospitalization.

The percentage of cultures of material from the nose yielding hemolytic streptococci was 32 percent in the group receiving globulin, 31 percent in those receiving penicillin, and 40 percent in those receiving antitoxin. It was noted that the throat cultures showing hemolytic streptococci at discharge in the group treated with gamma globulin were 82 percent, in the group treated with penicillin 54 percent, and in the group receiving antitoxin 35 percent, thus suggesting the ineffectiveness of gamma globulin in clearing the throat of hemolytic streptococci. However, throat cultures were not reported for all patients. For approximately 70 percent of the total number of patients the routine sedimentation rate was determined at least once.

In the group treated with gamma globulin there were no complications prior to the fourteenth day in the hospital. On the fifteenth day one patient had a suppurative cervical adenitis with secondary rise in temperature. In the group receiving penicillin 3 patients had complications prior to the fourteenth day; the first patient had acute purulent otitis media (left side) on the second day; the second, infectious arthritis on the fifth day; and the third, cervical adenitis on the twelfth day. Complications, lobar pneumonia, tonsillitis with bilateral cervical adenitis, and acute purulent otitis media (left side), also developed in this group in 3 patients on the nineteenth day. The last group, patients treated with scarlet fever antitoxin, showed the largest number of complications prior to the fourteenth day in the hospital. Seven patients had complications. Of these 7 children, 3 had cervical adenitis, appearing on the second, fourth, and fifth day, respectively; 2 had acute purulent otitis media, occurring in one on the sixth and in the other on the ninth day, and one had acute catarrhal otitis media

(bilateral) on the third day. In the same group, however, only one patient had a complication after the fourteenth day, acute purulent otitis media (right side) on the eighteenth day.

It was interesting to note that in the patients receiving scarlet fever antitoxin the temperature fell dramatically, but a large number of them revealed a secondary rise to from 101° to 102° F. and over on the third day after administration of antitoxin. In the patients treated with gamma globulin, also, a most remarkable response in a feeling of well-being was noted in 24 hours.

In summary, there were three and one half times as many complications in the group treated with penicillin as in that receiving gamma globulin and 5 times as many complications in the group treated with antitoxin as in that receiving gamma globulin. However, it should be noted that there were over twice as many severely ill patients in the group treated with antitoxin as in that receiving penicillin and over 3 times as many as in the group receiving gamma globulin. On the other hand, in the patients in whom complications actually developed there was no indication of any relation to the severity of the disease.

A comparison of the 3 agents employed in this study indicates that gamma globulin is the most effective in reducing the number of early and late complications in scarlet fever, depsite the fact that it is relatively ineffective in clearing the throat of the hemolytic streptococcus as compared with the other two agents. (Am. J. Dis. Child., Oct. '48, J. F. Landon and N. Greenfield)

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Rapid Attainment of Therapeutic Penicillin Concentrations in the Cerebrospinal Fluid: In this paper the authors present data indicating that penicillin can be found in the cerebrospinal fluid 2 and 3 hours after a single intravenous injection of penicillin. The study was carried out in 21 patients suffering from central nervous system syphilis (paresis). These patients were not selected in any way and apart from their neurological disease were in good or fair general health.

Because of the likelihood of failure to obtain assayable quantities of penicillin in the cerebrospinal fluid of normal patients unless a blood concentration of from 10 to 30 units per cc. of plasma was attained for some length of time, commonly used doses of penicillin (from 20,000 to 50,000 units every 3 hours) were not employed in this study. A single intramuscular dose of 500,000 units of penicillin will give plasma concentrations above 12 units per cc. for at least 30 minutes and the same dose introduced intravenously

will give peak concentrations of between 30 and 70 units per cc. and above 10 units per cc. for 30 minutes. Accordingly, the intravenous route of administration was employed in order to obtain the advantage of a brief but high penicillin plasma concentration immediately after administration which might favor diffusion across the blood-brain barrier. Penicillin in aqueous solution (500,000 units) was given intravenously (injection time being from 7 to 15 seconds) and thereafter blood specimens were obtained at 5 minutes, 2 hours, and 3 hours. In addition, 2 and 3 hours after therapy with penicillin, lumbar puncture was performed with a 21 gauge needle and the cerebrospinal fluid specimens obtained for penicillin assay. Blood and cerebrospinal fluid specimens were assayed for penicillin by a modified Rammelkamp serial ism. Three patients were studied in the above manner following the administration of 500,000 units of penicillin alone and 3 patients received the same dose of penicillin and 3 Gm. of caronamide intravenously in aqueous solution. An additional 15 patients were investigated twice, once after the intravenous administration of 500,000 units of penicillin alone and again after the intravenous administration of 500,000 units of penicillin together with 3 Gm. of caronamide. Each patient was his own control and intervals of from 7 to 27 days intervened between the two periods of study.

The results obtained in this study are presented in the table on the next page. The administration of 500,000 units of penicillin in aqueous solution resulted in demonstrable concentrations of penicillin in the cerebrospinal fluid at 2 hours in 14 of 18 individuals, and at 3 hours in 15 of 18 persons. When the same dose of penicillin was administered with 3 Gm. of caronamide, penicillin appeared in the cerebrospinal fluid at 2 and 3 hours in all of the 18 patients. The plasma concentrations resulting from the administration of penicillin were enhanced by caronamide from 2 to 5 times, and the cerebrospinal fluid concentrations were doubled.

Any particular concentration of penicillin has little meaning from a therapeutic standpoint unless it is interpreted in terms of both the sensitivity of the organism producing the infection under treatment and the defense mechanisms of the host in whom the infection is being treated. Wide recognition has been given, however, to a penicillin concentration of 0.03 unit per cc. as being therapeutically significant because this amount of the antibiotic is adequate to sterilize actively growing cultures of almost all strains of alpha hemolytic streptococcus, about half of the strains of meningococcus, and a somewhat smaller proportion of strains of pathogenic staphylococci.

Penicillin concentrations of 0.03 unit per cc. have been observed in the cerebrospinal fluid of persons suffering from central nervous system syphilis following the administration by continuous intravenous drip of from 10 to 25 million units during a 24-hour period, but only when doses of from 20 to 25 million units were so administered were these amounts of penicillin demonstrated in all patients. Comparable penicillin concentrations in the cerebrospinal

TABLE I.—PENICILLIN CONCENTRATIONS IN PLASMA AND CEREBROSPINAL FLUID AFTER INTRAVENOUS INJECTION OF 500,000 UNITS WITH AND WITHOUT 3 GM. CARONAMIDE INTRAVENOUSLY.

| PATIENT | CARONAMIDE | PENICILLIN CONCENTRATIONS* | | | | |
|---|---|---|---|---|---|---|
| | | BLOOD | | | CSF | |
| | | 5 min. | 2 hrs. | 3 hrs. | 2 hrs. | 3 hrs. |
| | | (after penicillin) | | | (after penicillin) | |
| GROUP I | | | | | | |
| LR | - | 70.90 | 1.08 | .416 | .023 | .045 |
| NT | - | 70.90 | 4.32 | 2.160 | 0 | .023 |
| JM | - | X | 2.88 | .496 | .023 | .045 |
| AVER. PENICILLIN | | 70.90 | 2.78 | 1.024 | .015 | .037 |
| GROUP II | | | | | | |
| JM | - | 23.81 | .992 | .124 | .031 | .021 |
| | + | 95.23 | 1.98 | .496 | .062 | .062 |
| RR | - | 67.58 | .248 | .124 | .031 | .031 |
| | + | 184.32 | 8.64 | 1.32 | .045 | .045 |
| JS | - | 70.92 | 1.08 | .416 | .045 | .045 |
| | + | X | 5.76 | 2.16 | .090 | .045 |
| AJ | - | 70.92 | 1.41 | .416 | .045 | .023 |
| | + | 95.23 | 2.98 | .992 | .026 | .093 |
| MW | - | 46.08 | .720 | .416 | 0 | .023 |
| | + | 47.62 | 1.98 | 1.15 | .016 | .031 |
| IJ | - | 31.56 | X | 1.08 | .023 | .015 |
| | + | 63.49 | 2.11 | .992 | .031 | .031 |
| WW | - | 63.49 | 1.49 | .744 | .045 | .023 |
| | + | 63.49 | 7.94 | 2.97 | .062 | .095 |
| SF | - | 31.44 | .714 | .218 | .023 | 0 |
| | + | 69.12 | 2.88 | 1.08 | .015 | .023 |
| BC | - | 63.49 | .992 | .248 | .045 | .045 |
| | + | 63.49 | 5.95 | .999 | .062 | .062 |
| RMcL | - | 31.74 | .496 | .186 | 0 | .023 |
| | + | 137.52 | 2.16 | 1.08 | .045 | .023 |
| JO | - | 46.08 | .744 | .124 | 0 | 0 |
| | + | 137.52 | 4.32 | 1.08 | .023 | .023 |
| RM | - | 31.74 | .992 | .248 | .023 | 0 |
| | + | 137.52 | 8.64 | 2.88 | .045 | .045 |
| HZ | - | 63.49 | 1.98 | 1.08 | .045 | .045 |
| | + | 137.52 | 11.52 | 5.76 | .045 | .090 |
| MK | - | 31.74 | 1.49 | .496 | .090 | .045 |
| | + | 34.56 | 5.74 | 2.50 | .135 | .135 |
| GG | - | 63.40 | 1.98 | .496 | .023 | .023 |
| | + | 69.12 | 5.74 | 2.50 | .022 | .045 |
| AVER. PENICILLIN | | 49.37 | 1.10 | .430 | .031 | .026 |
| AVER. PENICILLIN +CARONAMIDE | | 95.41 | 5.22 | 2.08 | .050 | .056 |
| GROUP III | | | | | | |
| DG | + | 137.52 | 2.88 | 1.08 | .023 | .023 |
| TW | + | 47.62 | 1.98 | .744 | .031 | .031 |
| AC | + | 92.16 | 2.88 | 1.44 | .045 | .023 |
| AVER. PENICILLIN +CARONAMIDE | | 92.43 | 2.58 | 1.088 | .033 | .025 |

* Penicillin proven by inhibition with penicillinase; penicillin measured in units per cc.

fluid were observed in similar patients following the administration of 100,000 units intramuscularly at intervals of 3 hours, but in only 18 of 23 patients when penicillin alone was given and in only 20 of 25 patients when penicillin was given in conjunction with caronamide. Apart from these reports the consensus is that either no penicillin or only a small amount in an occasional patient crosses the blood-brain barrier of a normal person. There is precedent in the medical literature for regarding paretics as having normal barriers

between the plasma and cerebrospinal fluid, and there is good evidence to believe that the inflamed tissues interposed between plasma and cerebrospinal fluid offer less impediment to the passage of penicillin than those not so involved.

In view of the greater permeability of an inflamed blood-brain barrier there is every reason to believe that an amount of penicillin in the plasma that will cause diffusion of measurable quantities of drug into the cerebrospinal fluid of normal patients (paretics) will cause diffusion of even greater amounts in patients with meningitis. It should be emphasized, however, that before the results of an investigational study are applied to therapy, the schedule of penicillin therapy employed should offer reasonable assurance that the diffusion of significant quantities of penicillin into the cerebrospinal fluid will occur in all normal individuals.

From the results obtained, it seems probable that the interval of 2 hours approximates rather closely the time required for the appearance of penicillin in the lumbar cerebrospinal fluid after the intravenous administration of 500,000 units of penicillin. More extensive sampling of the cerebrospinal fluid to determine the disappearance time of penicillin from the subarachnoid space was not done.

When the same dose of penicillin (500,000 units) was administered intravenously in conjunction with 3 Gm. of caronamide, the resulting penicillin plasma concentrations were increased so that transitory penicillin concentrations of from 60 to 104 units per cc. (average 95 units per cc.) above 5 units per cc. for 2 hours and above 2 units per cc. for 3 hours were reached in the average patient. These elevated concentrations of penicillin in the plasma resulted in doubling the amounts of penicillin demonstrated in the cerebrospinal fluid, and in the 18 patients to whom the combination of drugs was administered, all showed penicillin in the spinal fluid at 2 and 3 hours. In an additional group of 25 patients penicillin appeared in the lumbar spinal fluid within one hour in every patient to whom 500,000 units of penicillin and 3 Gm. of caronamide were given intravenously. Statistical analysis shows that the likelihood of the added elevations of penicillin in the spinal fluid following the combined use of penicillin and caronamide being due to chance alone is between 1 to 100 and 1 to 1000.

Clearly the elevation of penicillin concentrations in the plasma by the use of caronamide increased diffusion of penicillin into the cerebrospinal fluid, but it should be emphasized that the same results could be obtained without the aid of caronamide if sufficient penicillin was employed to give the same magnitude of penicillin plasma concentrations. Caronamide increased the penicillin plasma concentrations resulting from 500,000 units of penicillin from 2 to 5 times, these results conforming to those previously reported. The intravenous administration of 3 Gm. of caronamide was accompanied by no manifestations of toxicity, but about half the patients experienced a transitory generalized sensation voluntarily described as itching. The rapidity of

injection of a 15-percent solution of caronamide is the most obvious explanation of this observation.

The amounts of penicillin observed in the cerebrospinal fluid were therapeutically significant, but perhaps minimal from the standpoint of relying upon them for the treatment in a case of purulent meningitis caused by organisms amenable to penicillin therapy. However, it should be stated that many systemic infections are treated without either attaining or maintaining in the plasma penicillin concentrations as high as those here observed in the cerebrospinal fluid. Because these levels were attained in the cerebrospinal fluid of normal individuals in whom the barrier between the blood and cerebrospinal fluid was less permeable than is the case in patients suffering from meningitis, much higher concentrations of penicillin might be anticipated in patients having inflammation of the meninges. This has proven to be the case in patients with meningitis already studied and to whom 500,000 units of penicillin have been given intravenously. Penicillin concentrations in the cerebrospinal fluid as high as from 2 to 8 units per cc. have been observed within 2 hours after the first injection of penicillin.

The observation that therapeutically significant levels of penicillin were attained in the cerebrospinal fluid in all of the patients here studied suggests that the parenteral, particularly the intravenous administration of penicillin, has a place in the therapy of purulent meningitis and that intrathecal injection of penicillin is unnecessary in the majority of patients. (Am. J. M. Sc., June '49, W. P. Boger and W. W. Wilson)

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New Official Classification of Leprosy: At the Fifth International Congress for Leprosy held in Havana, Cuba, in 1948, the Commission on Classification and Nomenclature submitted a report embodying a new classification of leprosy to supersede the classification which had been agreed upon and used as a result of the Fourth International Congress for Leprosy held in Cairo, Egypt, in 1938. The 1938 classification designated cases as lepromatous, neural, or mixed.

The report containing the new classification was approved by the Congress in plenary session. A copy of it follows:

"The Classification Committee of this Congress, in a serious attempt to reconcile and unify these apparently discordant systems, arrived at a formula which is believed to be based on a biologic interpretation of the clinical facts. The criteria, on the basis of which the three classes herein defined are established, are in diminishing order of availability: (1) clinical, (2) bacteriological, (3) immunological, and (4) histopathological.

"It is proposed that the classification division of leprosy into two types, "polar" (Rabello, 1938) in their essential characteristics and relatively stable in their evolution, be recognized and maintained, and that they be designated:

Lepromatous (malignant, or gravis): symbol, L.

Tuberculoid (benign, or mitis): symbol, T.

"It is also proposed that, in addition, recognition be given a group of cases of less distinctive or positive characteristics, less stable and less certain with respect to evolution, and that it be designated:

Indeterminate (undifferentiated): symbol, I.

Definitions

"The characteristics of these three classes of leprosy are as follows:

"Lepromatous type. Minimal resistance to the existence, multiplication, and dissemination of the bacilli; constant presence of large numbers of bacilli in the lesions, with a distinctive tendency to form globi; characteristic clinical manifestations in the skin, mucous membranes (especially those of the upper respiratory tract and eye), and/or the peripheral nerves, together with involvement of other organs; regular failure to react to lepromin; pathognomonic granulomatous structure of the lesions; marked stability of type and a tendency to progression. These cases are "infectious" or "open."

"Tuberculoid type. High resistance to the existence, multiplication, and dissemination of the bacilli; bacteriologically negative as a rule or, if positive, with few bacilli except in reactional states; characteristic clinical manifestations, mainly in the skin and nerves, tending to be limited in extent and varying in degree with the reactivity of the tissue; reactivity to lepromin in a very high percentage of cases; nearly always a tuberculoid granulomatous structure in active lesions; marked stability, and a strong tendency to spontaneous regression in the absence of repeated reactions. These cases are usually "noninfectious" or "closed."

"Indeterminate group. Variable with respect to resistance; clinical manifestations chiefly in the skin and nerves; the skin lesions usually flat macules, either hypochromic, erythemato-hypochromic or erythematous; bacteriologically negative as a rule, or, if positive, with few bacilli; lepromin reaction usually negative or moderately positive; the lesions histologically of simple inflammatory nature; stability much less than in either of the (polar) types; and a variable tendency with regard to persistence, progression, or regression, or transformation into one of the polar types. These cases are usually "noninfectious."

## Clinical Subdivision of Cases

"The fundamental aim of any classification of a leprosy case being the determination of the type or group to which it belongs, in accordance with the foregoing definitions, certain members of the Classification Committee held that the "subtypes" of other systems merely correspond to clinical aspects of variable importance. These aspects can be considered from different points of view, namely:

Degree of severity (as, for example, the $L_1$, $L_2$, $L_3$, of the Memorial Conference Classification);

Manner of evolution (slow or rapid, stationary or progressive, reactional states, etc.);

Localization (skin, nerve, eye, systemic, etc.);

Morphology (macules, nodules, "plaques," diffuse infiltrations, etc.);

Clinical form (classical nodular lepromatosis, diffuse lepromatosis of Lucio, etc.)." (Arch. Dermatol. and Syphilol., May '49, O. Canizares)

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A Comparison of Depth of Anesthesia and Toxicity of Two and Four Percent Procaine Hydrochloride Solution: Procaine with added vasoconstrictor agent is capable of providing satisfactory anesthesia for operative and surgical procedures in dentistry and possesses less toxicity than most other compounds. The question concerning the optimal concentration of the drug to be used in dentistry is still being argued. Following Mayer's recommendation of 1924 that one percent procaine was the highest feasible concentration, the Council on Pharmacy and Chemistry of the American Medical Association has recommended in its New and Nonofficial Remedies the use of procaine solutions not stronger than 1/2 percent for infiltration anesthesia. The Council on Dental Therapeutics has held for many years that no solutions of procaine stronger than 2 percent ought to be used in dentistry routinely.

There are many occasions when the 2 percent solution proves ineffective in dentistry, and it would seem logical to obtain better anesthesia by increasing the concentration. However, it is feared that the use of a stronger solution, for instance 4 percent, would be more likely to provoke reactions or cause irritation or damage to the tissues. On the other hand, evidence has accumulated in the past tending to show that 4-percent solutions may be used safely and with distinct advantages in certain instances. The author believes, on the basis of clinical experience, that there are definite indications for the use of the stronger procaine concentration. In routine dental practice, it

would appear desirable to use procaine solutions of two different strengths, probably 2 percent and 4 percent. The 4-percent solution of procaine has been selected as the strongest suitable for dental anesthesia because it is the highest concentration which, allowing for added vasoconstrictor, does not become hypertonic.

Review of the recent literature on procaine suggests the need for a careful and objective reappraisal of this problem, particularly in view of newer knowledge of the intravenous administration and toxicity of procaine. The necessary steps in such an evaluation would be: (a) an objective estimation of the completeness or depth of pulpal anesthesia following the administration of the 2 and 4-percent solutions in search of measurable advantages of the higher concentration, and (b) an investigation of the influence of varying concentrations of procaine on its toxicity.

The experimental approach to (a) would involve the measurement of two elements. The first is the alteration in the rapidity of onset and the duration of anesthesia produced by varying strengths of procaine. This has been rather thoroughly studied, as has been the influence of added vasoconstrictors on these factors. The other element is depth or completeness of anesthesia. Because neither time of onset nor duration of action necessarily parallel the depth of local anesthesia, it was decided to attempt to measure this latter variable.

Studies were carried out in experimental animals and in human beings. It was shown that 1 cc. of a 4-percent solution of procaine hydrochloride containing neosynephrine 1:2500 gives a more profound anesthesia of the dental pulp than 1 cc. of a 2-percent solution containing an identical concentration of neosynephrine, when administered submucously in the upper jaw.

Concerning toxicity, the author's findings both in the rapid intravenous and in the subcutaneous tests with procaine hydrochloride rather definitely show that there is no or only a very insignificant increase in toxicity as expressed in $LD_{50}$ when the solution administered is increased in concentration from 2 to 4 percent as long as the drug amount is kept constant. A geometric ratio of increase in toxicity of procaine hydrochloride with increasing strength could not be shown to exist. Drug amounts of 2 or 4 percent strength up to 4 cc. are well within the limits of 200 mg.

The author and co-workers wish to emphasize that they do not recommend universal use of 4-percent solution in dentistry but rather the establishment of indications for the use of the stronger solution which may then be used by the profession with confidence. The 4 percent solution should be used mainly in maxillary infiltration anesthesia for cavity preparation and also in any local anesthesia, block or terminal, for the extraction of a tooth with involvement of

the apex, the periodontal membrane, or the curetting of granulomatous apical foci. The 2-percent solution should be used in all other operations. (J. Dent. Research, June '49, F. G. Everett)

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The Effects of Variable Factors on Crushing Strengths of Dental Amalgams: Dental amalgams constitute a most important and very high proportion of individual tooth restorations. The physical properties of finished amalgams, upon which the restorations depend for satisfactory service, vary with the alloy formulas, manufacturing methods, mixing procedures, and condensation technics. Previous studies of amalgams have established the effects of many variables and the American Dental Association and Federal Specifications for Dental Amalgams have established performance standards which are generally accepted.

In the earlier tentative drafts of these specifications, the physical qualities governed by detailed requirements included setting expansion, flow, and crushing strength. In later revisions the crushing strength requirements were eliminated primarily because those amalgams which met the flow requirements also met the crushing strength requirements. Notwithstanding the discontinuance of this early and rather low requirement, the crushing strengths of amalgams under many conditions have been reported in dental literature.

In considering some problems involved in the selection of testing methods for gypsum products it became apparent that some characteristics of these materials could best be determined by studying their elastic properties and crushing strengths under loads very slowly applied. An introductory series of tests to determine crushing strengths of amalgams under slow loading indicated that it would be possible to determine both elastic and plastic characteristics of these materials, and so gain some new basic information which could be related to the usefulness of these alloys in service.

After considerations of many of the variables involved in amalgam technics, series of tests were outlined which would show the effects of several individual factors. Those factors which can be controlled by the dentist were given major consideration. In recent years the increasing use of mechanical amalgamators has made their effects of interest; similarly, the effects of mechanical condensing devices are of interest to the dental profession, so these were also included.

In practice, amalgam mixes seldom contain more than 12 grains of alloy plus the required amount of mercury; and as the current amalgamators are not designed to handle larger mixes well, it was decided that a 12-grain mix would be a closer approximation to the mixes used in dental practice than

the large crushing strength specimen used by most previous workers. This size of mix is sufficient to make a cylindrical test specimen 4 mm. in diameter and 8 mm. long, which is the standard A.D.A. specification size for flow test specimens. Following the selection of the specimen size, tests were outlined to show the variation of crushing strengths for amalgam when: (1) two sizes of specimens were tested, 6 x 12 mm. and 4 x 8 mm.; (2) the loading rate (as measured by head travel of the testing machine) was varied; (3) the method of mixing was varied; (4) the method of condensation was varied; and (5) the age of the specimens when tested was varied.

Five currently used dental alloys were selected for test. These included two fine cut alloys, two which would be classed as medium in particle size, and a fifth which would be considered relatively coarse cut.

The conclusions which appear logical from consideration of the data secured in this study and of the requirements of dental amalgams in service are:

Crushing strengths of dental amalgams should be determined on specimens made from mixes approximating in size those commonly made by dentists. Approximately 12 grains of alloy and an appropriate amount of mercury will provide sufficient material to pack a 4 x 8-mm. test cylinder. The smaller 4 x 8-mm. specimens used gave an increase in crushing strength of from 2 to 7 percent over that of the 6 x 12-mm. cylinders used by previous investigators when prepared and tested under the same conditions. The compression rate should be given in reporting crushing strengths of dental amalgams to permit reproduction of test data. It appears that such speeds should be standardized at approximately 0.003 inch per minute to determine both the elastic and plastic properties of amalgams. The early strengths of amalgams are so low that no stress should be applied to a restoration less than an hour old, and any mastication of food on occlusal amalgam restorations less than 6 hours old may be expected to cause damage. The wide variation in the rates of amalgamation of these amalgam alloys under mechanical trituration indicates that the user of such mechanical devices needs exact directions for mixing of the specific alloy used if he is to avoid all possibility of unsatisfactory physical properties in finished restorations. Laboratory data indicated no significant improvement in the crushing strengths of amalgams as the result of mechanical rather than hand condensation.

The moduli of elasticity of the 5 amalgam alloys studied were within the range 1.2 to 2.1 x $10^6$ pounds per square inch. The average modulus for the alloys studied was 1.6 x $10^6$ pounds per square inch. This value is very low in comparison to those of the other alloys used as restorative dental materials. The clinical significance of this property warrants further study. The proportional limits of the amalgams studied varied with mixing and

condensing technics but fell within a range from 70 to 80 percent of the crushing strengths observed when taken to be that stress at which the unit of deformation per unit stress exceeds the average value found in the range from 5,000 to 25,000 pounds per square inch by more than 25 percent. An early compressive strength test appears to be a significant and acceptable substitute for the present specification test for flow.

Compression testing of amalgam in the dental materials field has resulted in a dispersion of values because of the difference in the size of specimens and the types of testing machines used. In order to confine these varying conditions of test it would seem feasible to prescribe the rate of loading, expressed in pounds per square inch per minute, to which the specimen has been subjected. Using these units for rate of loading it would not be necessary to imagine what the effect on strength would be, of the length, or the area of the specimen; or whether the specimen was loaded at so many pounds per minute or so many inches per minute. Rate of loading in pounds per square inch per minute virtually absorbs all these variables. (J. Dent. Research, June '49, N. O. Taylor et al.)

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Studies on the Mechanism of Action of Ionizing Radiations: It has been shown that dilute aqueous solutions of sulfhydryl enzymes are inhibited by small doses of x-rays by oxidation of the —SH groups of the protein moiety. Very few studies have been made on the effect of other ionizing radiations. Northrop, who studied the inactivation of crystalline pepsin by beta and gamma rays from radium, reported that inactivation required large amounts of radiation. Presented in this paper are experiments on the effect of alpha, beta, and gamma radiations on the activity of two crystalline sulfhydryl enzymes, phosphoglyceraldehyde dehydrogenase and urease. Enzyme inhibition by these radiations was produced by the same mechanism as that of x-rays; i.e., oxidation of the —SH groups by the products of water irradiation.

The experiments presented here on the inhibition of the sulfhydryl enzymes, phosphoglyceraldehyde dehydrogenase and urease, by alpha, beta, and gamma rays, and reactivation (in the case of alpha rays) on addition of glutathione, are presented as further evidence that ionizing radiations inhibit sulfhydryl enzymes by oxidation of the —SH groups essential for enzyme activity. This specific action on the —SH groups was clearly shown in the urease experiments and irradiation with gamma rays. A dose of gamma radiation that inhibited the enzyme containing the —SH groups intact had no effect at all when the —SH groups were withdrawn from oxidation by their transformation into mercaptides. In fact, complete reactivation of the enzyme was obtained on addition of glutathione.

The role of $H_2O_2$ in the inhibition of sulfhydryl enzymes by ionizing radiations was shown by the partial protection produced on addition of small amounts of catalase. This inhibiting action of $H_2O_2$ is probably restricted to oxidation of —SH groups. On irradiation with alpha rays, oxidation by $H_2O_2$ contributed 30 percent of the total inhibition, whereas with beta rays there seemed to be a greater contribution.

The equal efficiency of alpha rays and x-rays in the inhibition of sulfhydryl enzymes, as contrasted with the greatly diminished efficiency of alpha rays in the inhibition of carboxypeptidase, is probably due to the different mechanisms of action. The former are inhibited by oxidation of the —SH groups; carboxypeptidase inhibition seems to be due to protein denaturation ( the mechanism of carboxypeptidase action is unknown). All ionizing radiations had the same efficiency in inhibiting phosphoglyceraldehyde dehydrogenase.

Ionizing radiations have two different actions on proteins: oxidation of their —SH groups - a reversible phenomenon - and denaturation and destruction of the molecule, an irreversible phenomenon. The first requires fewer ionizing radiations than the second. These observations become of considerable biological significance when they are considered together with the distribution of sulfhydryl groups in living cells. In fact, it has been shown by a number of investigators that an abundance of sulfhydryl compounds are required by cells in mitosis and in division and growth. In all probability, these sulfhydryl groups (which are different from the sulfhydryl groups of enzymes) are oxidized on irradiation of cells, and inhibition of mitosis and of cell division by ionizing radiations may be due to this oxidation. Because oxidation of sulfhydryl groups is in general a reversible process, the effects of small amounts of ionizing radiations might also be reversible. (J. Gen. Physiol., 20 May '49, E. S. G. Barron and S. Dickman)

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Psychogenic Sneezing and Yawning: A divorced woman, about 40 years old, complaining of violent spasms of sneezing and a compression sensation in the chest, was referred to the author for diagnosis and to determine whether a causal relationship existed between her condition and the substances with which she worked. The claimant stated that she began sneezing on the first day that she worked with a gunpowder mixture. Occasionally the attacks were interrupted by yawning. Her condition became gradually worse, and by the third day the attacks became so violent and continuous that she required emergency care by the company doctor. The physician administered a general anesthesia (chloroform) and the patient was relieved of her symptoms for about 3 hours, after which the attacks recurred. The next day she was seen by her private doctor, who advised her to give up her job because he was of the opinion that her symptoms were caused by the inhalation of the dusts of the gunpowder. She was under his care for a period of about 3 weeks, receiving

vasoconstrictor and local anesthetic drugs to her nose and throat. This was discontinued because it failed to relieve the patient.

The patient's job was to weigh the gunpowder. Her first contact with this powder was on the day she began working in the factory. Prior to this job she worked as a pantry girl, where she came in contact with flour and other food substances. There was no history of allergy in the family. Because of economic pressure, she had decided to take the job in the gunpowder factory and place her infant child under the care of her older sister upon whom she had been dependent since the death of their mother twenty years ago. The claimant admitted that her sister had been like a mother to her since their mother's death. The claimant remembered having had a feeling of complete frustration on the day that she began working with the gunpowder mixture because she had received word that her sister was acutely and seriously ill, and she had become upset over the thought that there was no one else with whom she could leave the child. On her first visit to the author the claimant sneezed almost constantly, about 15 times per minute, which was interrupted occasionally by spells of yawning lasting only for a few minutes. She complained that she had been suffering with her condition from the time she began working with the gunpowder, that the attacks had persisted for the past 3 months, and that she was free of her symptoms only during her sleeping hours.

On examination of the patient, there was no evidence of conjunctivitis, but there was a profuse watery discharge from the eyes. The nasal mucosa was normal in appearance with a moderate amount of engorgement of the turbinates and no nasal discharge was present. Complete intradermal tests, including the extracts of the common inhalants and foods, produced no marked skin reactions. The gunpowder mixture which the claimant handled consists of the following ingredients: zinc dust, hexachloroethane, ammonium chloride, calcium chloride (anhydrous), calcium carbonate, and ammonium perchlorate, all of which are powders, and hexachlorabutadeine, a solution. Each of these was applied locally to the nasal mucosa and produced no local allergic reactions in the tissues. Inhalation tests with these materials also failed to produce local allergic changes in the nasal mucosa or symptoms of sneezing and yawning. Fluoroscopic examination of the chest showed no evidence of pathology in the lungs, and the heart shadow was within normal limits as to size and shape.

It was the impression of her physician that the claimant was troubled with an allergic coryza which was caused by inhalation of the gunpowder dust at the factory. However, for various reasons, it seemed apparent that a strong psychogenic factor played a role in this case. On her second visit to the office, although the claimant had been absent from her work for nearly 3 months, she came in sneezing violently and the author decided to try some form of suggestion therapy. The patient was told to look at an incandescent light and after repeating

several times, "Now you will not sneeze, you can't sneeze," within 10 seconds the sneezing stopped and the patient remained symptom-free for the rest of the session (a half hour). Before leaving, the patient was advised to look at an incandescent light whenever she felt inclined toward sneezing. When she returned a few days later she was enthusiastic over the treatment suggested, because she had only occasional attacks of sneezing which she had been able to control by this method. On this day and on subsequent visits, the author tried further experiments with suggestion. In general, he found that he was able to stop or start her sneezing and yawning spells at will. By pressing with his index finger beneath the angle of the jaw on the left and telling her that the sneezing would start, she immediately would begin sneezing most violently about 10 times per minute. On pressing on the opposite side and telling her that she would sneeze in double time, she immediately began sneezing about 20 times per minute. On twisting her left wrist, and telling her she would begin yawning, she immediately began yawning, and by directing her to look at an incandescent lamp, all symptoms ceased by suggestion.

On later visits, a nurse and other persons were able to produce and stop the symptoms by applying the pressure points as described above without speaking to the patient or making any suggestions. The patient was also conditioned to start and stop her symptoms with suggestions from the author that pressing with her left middle finger beneath the angle of the jaw on the left would start her sneezing, the left thumb would produce yawning, and pressure with her index finger would stop all symptoms.

Then inhalation tests were performed with the materials with which she came in contact at her work. The patient was blindfolded; her sneezing spells were started by pressing the trigger areas and she was told that the author was going to apply soothing medication to her nose. Instead the various ingredients which made up the gunpowder substance were applied to the nasal mucosa. She stopped sneezing and had no recurrence after each ingredient was applied. This was followed by shaking a bottle containing tap water in front of the patient (a rubber stopper was used to prevent any of the water from spilling) and after telling her that it contained a solution of the gunpowder mixture, she soon went into violent sneezing spells which occasionally were interrupted by short spasms of yawning. She pleaded with the author to get her out of her misery and by using the incandescent light method of treatment she was relieved of all her symptoms in a few seconds.

The claimant was relatively symptom-free from the time suggestion therapy was instituted until about two months later, when she made her appearance at a Compensation Board Hearing. On that occasion she had a recurrence of her symptoms and the attack was so violent that the hearing had to be postponed. After this session was over, her symptoms disappeared. About two months later she returned with no complaints but quite indignant because compensation was denied her on the basis that there was no causal relationship between the sneezing and her work. When the author gave her the reason for the

decision, that he was able to produce and stop her symptoms by suggestion, she challenged his ability to start her sneezing again. At this time the author tried suggestion therapy again and failed to produce a recurrence of the claimant's former symptoms. This person was under observation for a period of two years, and when last seen she was working as a domestic and had had no recurrence of her symptoms. (Psychosom. Med., March-April '49, H. H. Shilkret)

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Use of Beryllium Discontinued in Fluorescent Lamps: After consultation with officials of the Public Health Service, the major manufacturers of fluorescent lights have stated that after 30 June 1949, they will no longer use beryllium phosphor in the manufacture of fluorescent lights. For several years the industry has been working with medical men toward eliminating the dangers of beryllium in fluorescent lights. Dr. James G. Townsend, Chief of the Public Health Service's division of industrial hygiene, has been serving as chairman of the Medical Advisory Committee on Beryllium which includes the medical directors of the major manufacturers of fluorescent lights. In view of the fact that the manufacturing change-over in eliminating beryllium will take until the end of June, and there is a stockpile of fluorescent lamps already manufactured, the Medical Advisory Committee on Beryllium emphasized again the instructions it has issued in the past concerning the health hazards in the destruction of the fluorescent lights.

The committee, which has been studying results of work on beryllium for 3 years, has reiterated its assertion to the general public that there is no danger whatever from the lights when they are intact. The possible dangers come in the destruction of old lights. Recently there have been reports of children who cut themselves on broken lights, and that the cuts healed very slowly. The committee repeated, however, its original statement that such cuts do not cause any general sickness, or spread further on the body. Surgical care is necessary if the cut does not heal after a reasonable period of time. Although precautions should be taken against breathing the dust from broken fluorescent lights, the committee said, there is no record of any person suffering injury from breathing dust from the occasional breakage of a lamp, despite the millions of lights in use.

The committee reissued its instructions on the safest way to dispose of used fluorescent lights. If there are only a few lights to be broken occasionally, they should be broken out of doors in a waste area or in a waste container, and the person breaking them should avoid breathing the dust or vapor that arises. The second situation in which there is a possible danger is the breaking of large numbers of fluorescent lamps, either intermittently or regularly, with the time required for the operation running into hours. Instructions in these cases are as follows: (a) break lamps out of doors in waste-disposal area or in ventilated hood. To avoid unnecessary dust, the breakage is best done within the waste container. (b) The operator should be supplied with, and required to wear, a

respirator approved by the United States Bureau of Mines for toxic dusts. (c) Ultimate disposal of broken lamps should be such that the public and others will not be unduly exposed to powders. In situations in which it is necessary to break the lamps within buildings, it should be done in an isolated room and in a hood to minimize escape of dusts. Sufficient exhaust ventilation should be supplied to the hood to provide an air intake of at least 125 linear feet per minute at all hood openings.

It is recommended that broken lamps not be disposed of in an incinerator, but either be thrown into water, or in a dump where they are not likely to be disturbed with a resulting evolution of dust. Significant amounts of mercury vapor may be found in the air during the breaking up of fluorescent lamps. In situations in which there is frequent or continuous exposure, measurements should be made of the amounts of mercury vapor in the air during the operation. If high levels are found, protection should be provided for the operator. (Industrial Hyg. Newsletter, July '49)

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Training for Dental Officers, USN: See Circular Letter 49-71 on page 31.

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Examinations for Appointment in the Medical Corps of the U. S. Navy to be Held 12-16 September 1949: The Bureau of Medicine and Surgery, Navy Department, has announced that examinations for the selection of candidates for appointment to the grade of lieutenant (junior grade) in the Medical Corps of the U. S. Navy will be conducted at all United States Naval Hospitals during the period from 12 to 16 September 1949.

Graduates of approved medical schools in the United States or Canada who have completed intern training in accredited hospitals or who will complete such training within four months of the date of the examination and who are physically and in other respects qualified, may be examined for appointment as lieutenant (junior grade) in the Medical Corps of the Navy. Candidates must be less than 32 years of age at the time of appointment.

Candidates will be required to appear before boards of medical examiners and supervisory naval examining boards at the naval hospital nearest their place of residence to demonstrate their physical and professional qualifications for appointment. Following approval by the President of the United States and confirmation by the Senate, selected candidates will be issued appointment and orders assigning them to duty in a naval medical facility for active naval service.

A lieutenant (junior grade) in the Medical Corps of the U. S. Navy receives compensation at the following rate per annum:

| | Base Pay | *Added Compensation | Rental Allowance | Subsistence Allowance | Total |
|---|---|---|---|---|---|
| With Dependents | $2400.00 | $1200.00 | $900.00 | $511.00 | $5011.00 |
| Without Dependents | $2400.00 | $1200.00 | $720.00 | $255.50 | $4575.50 |

*The added compensation of $100.00 per month was authorized for payment to medical and dental officers of the naval service by Public Law 365 - 80th Congress approved 5 August 1947.

Detailed information concerning the form and procedure of application may be obtained from the local offices of Naval Officer Procurement or from the Bureau of Medicine and Surgery, Navy Department, Washington 25, D. C. (Attn: Code-3424).

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General Instruction Course for USNR and USN Dental Officers of Ninth Naval District: Twenty-five dental officers of the regular Navy completed a general course of instruction recently conducted at the Administrative Command, Naval Training Center, Great Lakes, Ill. The course covered three distinct phases, with lectures and instruction being given in military subjects, in administration of dental departments, and in duties in emergency and battle station subjects. This course is also being made available to Naval Reserve dental officers. It is planned to conduct this course at the Naval Training Center, Great Lakes, Illinois, during the following periods:

7 - 20 August, inclusive

11 - 24 September, inclusive

9 - 22 October, inclusive

6 - 19 November, inclusive

4 - 17 December, inclusive

Reserve dental officers of the Ninth Naval District who are interested in this training should make application to the commandant.

Announcement will be made later concerning similar courses which are being planned and developed in other naval districts. (Dental Div., BuMed)

Course in Industrial Medicine and Hygiene for MC, USNR and USN: Under the auspices of the Commandant of the Third Naval District, a one-week training course for medical officers in industrial medicine is being offered at the School of Public Health, Columbia University, 600 West 168th Street, New York City, from the 19th through the 24th of September 1949.

Lectures will be drawn from outstanding specialists in civilian and military practice. Commander L. J. Goldwater, MCR, USNR, Professor of Industrial Hygiene, School of Public Health, Columbia University, and Lieutenant Commander H. E. Tebrock, MCR, USNR, outstanding specialist in industrial medicine and traumatic surgery will be in charge of the program. A field trip to the Industrial Hygiene Laboratory under the supervision of Captain H. G. Beck, MC, USN, at the U. S. Naval Shipyard, Brooklyn, New York, will be included.

The course is planned especially to stimulate interest in the Naval Reserve and to prepare enrollees for active duty in the field of industrial medicine in peacetime and in the event of a national emergency. A limited number of medical officers of the regular Navy who are interested in this field may be assigned to the course on temporary additional duty orders. Only those officers who may be spared without a relief will be considered.

Applications for this short course of instruction should be submitted to the Chief of the Bureau of Medicine and Surgery prior to 15 August 1949. (Professional Div., BuMed)

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Courses in the Medical Aspects of Nuclear Energy Available to Medical Officers of the 3rd, 4th, 5th, 6th Naval Districts and PRNC: The Armed Forces Special Weapons Project announces a series of four indoctrination courses entitled "The Medical Aspects of Nuclear Energy" to be conducted at Sternberg Auditorium, Army Medical Center, Washington, D. C., during the year 1949-50. These courses will be available to medical officers of the regular Navy and the U. S. Naval Reserve, both active and inactive, of the 3rd, 4th, 5th, 6th Naval Districts and PRNC only, and are planned for the following periods:

| | |
|---|---|
| 10th Course | 19 - 23 September 1949, inclusive |
| 11th Course | 28 November to 2 December 1949, inclusive |
| 12th Course | 6 - 10 February 1950, inclusive |
| 13th Course | 8 - 12 May 1950, inclusive |

In accordance with the present estimate of the Armed Forces Special Weapons Project, the quota available to the Bureau of Medicine and Surgery for assignment of medical officers to each course will be five.

Applications are desired from interested medical officers in the above specified areas for any of the sessions listed. It is requested that application be submitted far enough in advance to be received in BuMed at least six weeks prior to the beginning date of the session requested.

TAD orders for attendance will be provided by the commandant of the naval district concerned. All naval medical officers will be quartered and subsisted at the National Naval Medical Center, Bethesda, Maryland, and will receive $1.00 per diem for partial defrayment of subsistence while under instruction. Medical officers of the Naval Reserve (inactive) will be considered to be on active duty and will receive pay and allowances accordingly. Medical officers in this status are invited to submit a request for training on active duty to their respective District Commandant and the Bureau of Medicine and Surgery to cover the session of their choice. Medical officers having already performed their annual two weeks' training period are precluded from applying for this instruction. (Professional Div., BuMed)

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Vacancies in Medical Service Corps to be Filled: The Surgeon General of the Navy has announced that 160 vacancies exist in the Medical Service Corps. Of the 160 vacancies, 50 are in the Pharmacy Section, 10 are in the Optometry Section, and 100 are in the Allied Sciences Section.

Qualified civilians are eligible for appointment in the Allied Sciences, Pharmacy, and Optometry Sections. Commissions are available in the grades of ensign and lieutenant (junior grade) for both male and female candidates.

Appointments in the grade of ensign will be made from those applicants holding an acceptable OD degree, or AB or BS in pharmacy or one of the following allied medical sciences: bacteriology, biochemistry, biophysics, chemistry, parasitology, pathology, pharmacology, physics, physiology, psychology, radiobiology, serology, sanitary engineering, virology, or public health (medical statistics). Candidates for the Allied Medical Science Section must be qualified for research and preventive medicine in one of these fields.

Candidates for appointment in the grade of lieutenant (junior grade) must hold an acceptable DSc or PhD degree in optometry, pharmacy or an allied medical science listed above.

In addition to these qualifications, the applicant must be not less than 21 nor more than 32 (30 for women) at the time of appointment, be a citizen of the United States (either natural born, or naturalized for a period of ten years), be physically qualified, and must be able to establish his mental, moral, and professional fitness. Women are not eligible for appointment if they are married

or if they are the parent, adoptive parent or step-parent of a child under 18.

The professional fitness of the candidates will be determined after selection by means of examination to determine their professional knowledge and what they may reasonably be expected to know of the basic sciences in their field. Subjects to be covered in the examination are as follows:

(a) For candidates holding bachelor degrees:

(1) Pharmacy Section: General inorganic, organic, and pharmaceutical chemistry; materia medica and toxicology; principles of pharmacy; incompatibilities; dispensing; and history and literature of pharmacy.

(2) Optometry Section: Ocular anatomy, ocular pathology, theoretic optometry, practical optics, visual fields, physiology, orthoptic treatment and procedures. A practical and oral examination will include examination of the eyes and their appendages, orthoptic procedure, plotting of visual fields, and prescription writing.

(3) Allied Sciences Section: Mathematics, chemistry, physics, biology, and general and advanced examination including experimental design in the candidate's specialty.

(b) For candidates holding DSc or PhD degrees:

(1) They will be examined in the same subjects as outlined above but will be expected to show greater practical knowledge and ability.

(2) They will also be examined in biometrics, physiology, hygiene, or such other subjects as are pertinent to their educational and professional training for the degree held in their special field of science.

Former Service personnel (officer and enlisted) and members of the Reserve components of the Armed Forces are eligible to apply for these appointments. Members of the Reserve components of other branches of the Armed Forces must submit a statement from an authorized official of the parent organization that the applicant will be released if he is tendered an appointment in the U. S. Navy. All appointments will be with a current date of rank. Candidates found not qualified, or not selected, will be notified in writing.

Interested personnel may apply for these commissions to any Office of Naval Officer Procurement. Applications and requests for information should not be made directly to the Navy Department in Washington as local offices are required to take first action in all such matters.

The addresses of offices of Naval Officer Procurement are given below:

| Office | Street Address |
|---|---|
| Atlanta 1, Ga. | 721-31 Healey Bldg. |
| Boston 10, Mass. | 495 Summer Street |
| Chicago 11, Ill. | American Fore Bldg., 884 North Rush Street |
| Cincinnati 2, Ohio | Rm. 243, Federal Bldg., 5th, Main and Walnut Streets |
| Dallas 2, Texas | Bldg. 11, Naval Air Station |
| Denver 2, Colo. | New U.S. Customs House, 19th and Stout St. |
| Detroit 26, Mich. | 1249 Washington Boulevard |
| Kansas City 6, Mo. | 239-41 U.S. Courthouse, 9th St. and Grand Ave. |
| Los Angeles 14, Calif. | Rm. 503, 626 South Spring Street |
| Minneapolis 2, Minn. | 1667 Northwestern Bank Bldg., 7th and Marquette Avenues |
| New Orleans 13, La. | 800 Bienville Hotel Bldg., 1040 St. Charles Ave. |
| New York 7, N. Y. | Rm. 1502, Federal Office Bldg., 90 Church St. |
| Philadelphia 7, Pa. | 3rd Floor, Old Post Office Bldg., 4th Avenue and Smithfield St. |
| San Francisco 11, Calif. | Ferry Building |
| Seattle 4, Washington | 513 Arctic Bldg., 704 3rd Avenue |
| Washington 25, D. C. | 1400 Pennsylvania Avenue, N.W. |

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Fitness Reports on Officers Undergoing Instruction in Civilian Institutions: See Circular Letter 49-78 on page 37.

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Dental Technician Study Guides: Study guides for all Naval Dental Technician ratings have been completed and will soon be available for distribution at the District Printing and Publication Offices.

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BUMED CIRCULAR LETTER 49-68 10 June 1949

To: District Medical Officers All Naval Districts (less 10, 14, 15, 17), PRNC and Naval Air Reserve Training

Subj: Modification in Method of Reporting the Volunteer Reserve Component of the Medical Department

Refs: (a) BuMed Circular Letter 47-141
(b) BuPers ltr 1D10-be; Ser F: 747, dtd 29 Apr '49

This letter (1) states that incident to reference (b) the first part of enclosure (A) to reference (a) is canceled and (2) directs that in order for BuMed to be informed concerning the status of Volunteer Reserve Medical Units, to be established under the authority of reference (b), a quarterly letter report shall be forwarded, indicating the unit number, location of unit, and number of personnel by Corps assigned to the unit.

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BUMED CIRCULAR LETTER 49-69 10 June 1949

To: All Ships and Stations

Subj: Orthopedic Appliance Technic; Specialization Course in

Refs: (a) Catalog of Hospital Corps Schools and Courses, Revised 1944 (NavMed 367).
(b) Addendum to Catalog of Hospital Corps Schools and Courses (NavMed 639).

Encl: (A) Tentative Curriculum and Qualifications for Assignment to Course of Instruction.

It is stated in this letter that (1) a six months' specialization course for enlisted personnel of the Hospital Corps in the mechanics of Orthopedic Appliances has been established at the U. S. Naval Hospital, Philadelphia, Pennsylvania, and the U. S. Naval Hospital, Mare Island, Vallejo, California and (2) hospital corpsmen who satisfactorily complete a course of instruction in Orthopedic Appliance Technic will be designated and issued a certificate as "Orthopedic Appliance Mechanic."

The material contained in the enclosure follows:

## TENTATIVE CURRICULUM

## ORTHOPEDIC APPLIANCE TECHNIC

| Subject | | Clock Hours Theoretical | Practical |
|---|---|---|---|
| AP 8 | Anatomy and Physiology | 48 | 0 |
| OAM 1 | Prosthetic Training and Fitting | 20 | 0 |
| OAM 2 | Plaster and Plastic Construction | 4 | 144 |
| OAM 3 | Above-Knee Construction | 4 | 144 |
| OAM 4 | Below-Knee Construction | 4 | 144 |
| OAM 5 | Arm Construction | 4 | 144 |
| OAM 6 | Leather and Foot Construction | 2 | 74 |
| OAM 7 | Orthopedic Brace Construction | 4 | 144 |
| OAM 8 | Painting and Finishing | 2 | 74 |
| | Total Hours | 92 | 868 |
| | Grand Total Hours | 960 | |

(6 Months' Course, 40 hours per week, 4 weeks per month)

AP 8 Anatomy and Physiology: Study of osteology, myology, nerves and blood vessels and kinematics in relation to artificial limbs.

OAM 1 Prosthetic Training and Fitting: Training amputees in the use of prosthesis, applied psychology, primary rules of fitting and alignment of various appliances.

OAM 2 Plaster and Plastic Construction: Actual construction of plaster moulds and the fabrication of rigid and nonrigid plastic articles.

OAM 3 Above-Knee Construction: Instruction in the use of various hand and power tools, actual construction, alignment and fitting of above-knee prosthesis.

OAM 4 Below-Knee Construction: Instruction in the use of various hand and power tools, actual construction, alignment and fitting of below-knee prosthesis.

OAM 5 Arm Construction: Instruction in the use of various hand and power tools, actual construction, alignment and fitting of arm prosthesis.

OAM 6 Leather and Foot Construction: A. Instruction in the use of various hand and power tools. B. Shoe prescriptions, application of. C. Study of types of leather, cuts of hides, weights, etc. D. Manufacture of the artificial foot.

OAM 7 Orthopedic Brace Construction: Instruction in the use of various hand and power tools, actual construction, alignment and fitting of all types of corrective and supporting orthopedic braces.

OAM 8 Painting and Finishing: Instruction in the use of various hand and power tools, actual painting and plasticing of artificial limbs for the cosmetic effect in finishing.

PREREQUISITES

| Minimal Qualifications | Desirable Qualifications |
|---|---|
| Two years high school.<br>Graduate Basic Hospital Corps School or Equivalent. | High school graduate.<br>Orthopedic Appliance manufacture. |

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BUMED CIRCULAR LETTER 49-70 10 June 1949

To: All Ships and Stations

Subj: Handbook of the Hospital Corps, U. S. Navy, 1949; Distribution of

1. The initial distribution of the Handbook of the Hospital Corps, U. S. Navy, 1949, will be made without requisition, based on complements of all activities. A limited supply of Handbooks will be kept in stock at the Publications Supply Depot, U. S. Naval Supply Center, Norfolk 11, Va. Additional copies may be ordered as required.

2. It is desired that each enlisted hospital corpsman receive a copy of the Handbook at no personal expense. Replacements for losses cannot be accomplished by the Bureau. Additional copies may be purchased at the Superintendent of Documents, Government Printing Office, Washington 25, D. C. for $1.75 each. --BuMed. C. A. Swanson

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BUMED CIRCULAR LETTER 49-71 13 June 1949

To: All Dental Officers

Subj: Graduate and Postgraduate Training for Dental Officers, U. S. Navy

1. The following graduate and postgraduate training is available to officers of the Dental Corps, U. S. Navy:

| Course | Place | Duration | Commences | Billits | Vacancies |
|---|---|---|---|---|---|
| Dental Internship | U.S. Naval Dental School and 7 Naval Hospitals | 12 mos. | Aug. 1949 | 40 | 0 |
| General Postgraduate Course | U.S. Naval Dental School | 6 mos. | Jan. 1950 | 10 | 6 |
| Specialized Course on Prosthodontia | U.S. Naval Dental School | 6 mos. | Jan. 1950 | *1 | 1 |
| Specialized Course on Oral Surgery | U.S. Naval Dental School | 6 mos. | Jan. 1950 | *1 | 1 |
| Oral Surgery Residency | Naval Teaching Hospital | 12 mos. | Jan. 1950 | 2 | 2 |
| Prosthodontia Residency | Naval Training Center | 12 mos. | Jan. 1950 | 2 | 2 |
| Long Specialty, Research and Basic Science Courses | Civilian Schools | 9 to 12 mos. | Varies | 10 | 4 |
| Short Postgraduate and Refresher Courses | Civilian Schools and Professional Societies | Varies | Varies | Not limited | Not limited |
| Dental Material Research | National Bureau of Standards, Washington, D. C. | 12 mos. | July 1949 | 2 | 0 |
| Logistics Course | Naval War College, Newport, R. I. | 10 mos. | July 1949 | 1 | 0 |
| Industrial College Armed Forces Course | Industrial College Armed Forces, Washington, D. C. | 10 mos. | Aug. 1949 | 1 | 0 |
| Amphibious Warfare Senior Course | Marine Corps Schools, Quantico, Va. | 9 mos. | Sept. 1949 | 1 | 0 |
| Armed Forces Staff College Course | Armed Forces Staff College, Norfolk, Va. | 5 mos. | Aug. 1949 | 1 | 0 |

*Candidates will be selected from officers attending General Postgraduate Course at U. S. Naval Dental School.

2. Naval Dental Internship Program. This program, which is designed to meet the American Dental Association standards for rotating dental internships, is available to 40 recent graduates in dentistry. The training commences each year in August and is for a period of 12 months. Six months' training is given at the U. S. Naval Dental School and the other six months at one of the following teaching naval hospitals: St. Albans, Philadelphia, Portsmouth, Va., Great Lakes, San Diego, Long Beach, Oakland.

3. General Postgraduate Course at U. S. Naval Dental School. Dental officers are eligible to apply for assignment to this course of instruction upon completion of at least one tour of duty at sea or outside the continental limits of the United States. Classes for this course convene in January and July of each year. The instruction is for a period of six months. This course is

designed to acquaint experienced dental officers with the latest advances in the various branches of dentistry and naval dental administration. It is planned that officers who were originally appointed in the regular Navy in the grade of lieutenant (junior grade) after 1 January 1944 will be required to complete this course before they will be considered for long specialized graduate or postgraduate courses or for naval dental residencies. Exceptions may be made to this requirement in cases of unusual training or in the event the number of dental officers requesting the General Postgraduate Course exceeds the number of vacancies.

4. Specialized Courses at U. S. Naval Dental School. These courses provide advanced training in prosthodontia and in oral surgery for a period of six months following the six months' basic training in the General Postgraduate Course, thereby providing 12 months' training at the U. S. Naval Dental School. Candidates for specialty training are selected from officers attending the General Postgraduate Course on the basis of demonstrated ability and interest in such training.

5. Naval Dental Residency Program. Each residency is designed to provide opportunity to acquire proficiency in a specialized field of practice or research and the educational background for continued development in a special field. The period of training is 12 months which, in addition to the 12 months spent in the General and Specialized Courses at the U. S. Naval Dental School, will provide dental officers with the two years of formal training required of applicants for examination by the American Specialty Boards. The candidates for naval dental residency training will be selected from among the dental officers who satisfactorily complete the training in a specialized course at the U. S. Naval Dental School. Dental officers who complete long courses in civilian colleges also may request assignment to naval dental residency training, especially if such training is necessary to complete requirements for graduate degrees.

6. Long Specialty, Research, and Basic Science Courses in Civilian Schools. Subject to the needs of the Navy and the funds available, courses of instruction in all dental specialties, dental research, and basic sciences which are offered by civilian teaching institutions are available to officers of the Naval Dental Corps. The length of these courses is one academic or calendar year. Detailed direction for applying for assignment to these courses may be found in paragraphs 1325 and 1326, Manual of the Medical Department, Advance Change 3-10. Applications should show that candidates possess special aptitude and sufficient experience to obtain full benefit from advanced specialized instruction. At the time of this writing, four vacancies exist for dental officers for this type of instruction. No applications have been received for long course training in operative dentistry, periodontia, dental medicine, or oral pathology, and there has been an excess of applications only in the field of denture prosthesis.

7. Short Postgraduate and Refresher Courses. Dental officers are encouraged to apply for short postgraduate and refresher courses given by civilian colleges and professional societies whenever such courses are available in the vicinity of their duty stations. When applications are submitted and approved in accordance with BuMed Circular Letter 48-4, 5 Jan 1948, tuition and other fees will be paid from BuMed training funds. However, funds are not available for travel and per diem expenses of officers authorized to attend these short courses.

8. Dental Material Research Training at National Bureau of Standards. This training offers opportunity for advanced training and participation in dental research projects under the guidance of the staff of the Dental Materials Section of the National Bureau of Standards, which includes one or more American Dental Association Research Fellows. The facilities of the National Bureau of Standards, Washington, D. C., are unexcelled for this type of research. Only candidates who have special aptitude in this field are considered for this advanced instruction.

9. Logistics Course, Naval War College, Newport, R. I. This course is given to prepare experienced officers for high level functions of logistics planning, operational logistics, air logistics, and logistics administration. It is available to one dental officer each year. Ordinarily, announcement of the grades of officers eligible to attend this course are made in the Navy Department Bulletin. The candidate is determined each year by a selection board which is convened in BuPers, from the applications which are received in that Bureau.

10. Industrial College of the Armed Forces, Washington, D. C. This is a 10-month course for experienced officers. It is established to train officers of the Armed Forces in all aspects of procurement, planning and economic mobilization; to evaluate the economic war potential of foreign nations; and to study the social, political, and economic impact of war. It is available to one dental officer each year. Announcement of this course ordinarily appears in the Navy Department Bulletin. The candidate is determined each year by a selection board which is convened in BuPers, from the applications which are received in that Bureau.

11. Amphibious Warfare School, Senior Course, Marine Corps Schools, Quantico, Virginia. This course is designed primarily to cover the conduct of air-amphibious operations employing battalions, regiments, divisions, corps, and corresponding aviation organizations contained within the Fleet Marine Force. Instruction is designed to produce troop commanders on battalion and regimental levels and executive staff officers (and assistants) on all levels. Naval officers are selected for this training by a board convened in BuPers, from applications which are received in that Bureau. Announcement of this course is ordinarily made in the Navy Department Bulletin.

12. Armed Forces Staff College, Norfolk, Virginia. This course is established to prepare experienced officers for the exercise of command and the performance of joint staff duties on the theatre and major joint task force levels, to insure proper coordination and team work of officers of the Armed Forces, and to foster mutual confidence and understanding among the Services. Announcement of this course is ordinarily made in the Navy Department Bulletin. Candidates are selected by a board which is convened in BuPers for that purpose, from applications which are received in that Bureau. --BuMed. H. L. Pugh

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BUMED CIRCULAR LETTER 49-72 14 June 1949

To: All Shore Stations Except Naval Hospitals

Subj: NAVMED-I (Rev. 11-45), Change in Reporting of Beds

Refs: (a) BuMed C/L 49-59, dtd 5 May 1949, Pars. 3 and 4.
(b) BuMed C/L 49-52, dtd 28 Apr 1949, Par. 3.
(c) SecNav ltr M-62, Serial 191, 13 Dec 1948, N.D. Bul. of 15 Jan 1949, 49-11.
(d) Par. 5111, Manual Medical Dept., Rev. 1945.

It is stated in this letter that beginning 1 July 1949, "Total Authorized Beds" (Part 1, Line No. 04, NavMed-I) will be reported as "Operating Bed Capacity." The operating bed capacity will be based on the actual patient census of each activity concerned plus 50 percent of the average daily census over a six months' period. The reported operating bed capacity should be changed only if circumstances arise locally which require an immediate increase in beds for utilization. Remaining beds shall be reported as "Emergency Expansion Reserve" in Part 1, Line No. 01, NavMed-I, in parenthesis.

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BUMED CIRCULAR LETTER 49-73 15 June 1949

To: All Ships and Stations

Subj: Disposition of Medical Records of Civilian Employees

Ref: (a) BuMed Circular Letter No. 48-117; N. D. Bul. of 15 Nov 1948, 45-855.

1. Reference (a) is hereby canceled. Current instructions on the disposition of industrial health jackets will be found in paragraph 12B11.5(c), Item 125, Manual of the Medical Department. --BuMed. H. L. Pugh

BUMED CIRCULAR LETTER 49-74 15 June 1949

To: All Ships and Stations

Subj: Ration Record, NAVMED HF-36.

Ref: (a) BuMed ltr. F33-ECH-EJB, L16-8(071-41) (BuMed Circ. Ltr. 44-91), of 22 May 1944; AS&SL Jan-June 1944, 44-618, p. 391.

1. Reference (a) is modified as follows:

In the paragraph headed "Line 45-Pensioner", delete the entire third and fourth sentences, and insert a new third sentence to read as follows: "Detailed reports of hospitalization are not required nor will any charge be collected locally or by the Bureau."

--BuMed. H. L. Pugh

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BUMED CIRCULAR LETTER 49-75 15 June 1949

To: All Holders of the Manual of the Medical Department

Subj: Advance Change 3-13, MMD.

Encl: 1. (HW) Subject Change.

1. The enclosed Advance Change 3-13 is effective immediately. It shall be recorded on the "Record of Changes" page in the Manual. The individual paragraph changes are to be inserted in their proper places in the Manual text. --BuMed. H. L. Pugh

Note: Enclosure consists of 7 pages of changes. Individual copies will be distributed to all holders of the MMD upon receipt from printer in from 3 to 4 weeks.

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BUMED CIRCULAR LETTER 49-76 15 June 1949

To: All Holders of the Bulletin of Bureau of Medicine and Surgery Circular Letters, NAVMED-937.

Subj: Inspection of Naval Medical Activities; Cancellation of Circular Letter Concerning.

Ref: (a) BuMed Circular Letter No. 47-70.

1. Reference (a) is hereby canceled in view of the addition of a new Section IV, Medical Inspection of Naval Activities, to Part I - Chapter 2D of the Manual of the Medical Department (Advance Change 3-13). --BuMed. H. L. Pugh

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BUMED CIRCULAR LETTER 49-77 15 June 1949

To: All Stations

Subj: Hospitalization of Army and Air Force Personnel, Separate Reports of, Request for.

Ref: (a) Pars. 4142.1 and 4143.1, ManMedDept., USN, 1945 Edition.

It is stated in this letter that (1) separate reports (in quintuplicate) of hospitalization of Army and Air Force personnel are required after 1 July 1949, inasmuch as the Departments of the Army and Air Force will reimburse this Bureau for the hospitalization of their personnel in naval medical facilities, (2) accordingly no collections for hospitalization or subsistence of the subject personnel shall be effected locally, and (3) Army officers and enlisted personnel shall continue to be reported on lines 52 and 53 respectively, on the Monthly Ration Record, NavMed HF-36, as heretofore, and Air Force officers and enlisted personnel shall be reported on lines 66 and 68 respectively of the subject report.

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BUMED CIRCULAR LETTER 49-78 Joint Letter 16 June 1949

To: Commandants, All Naval Districts and River Commands

Subj: Officers' Fitness Reports for Medical and Dental Officers and Ensigns (HP) Undergoing Professional or Technical Training or Courses in Civilian Institutions; Submission of

Refs: (a) Art. 1701, U. S. Navy Regulations, 1948.
(b) Arts. B2202 and H1810, BuPers Manual, 1948.
(c) BuPers Circular Letter 39-49 (NDB 49-130).

1. Officers' Fitness Reports, Form NavPers-310A (Rev. 6-45), required by references (a) and (b), submitted during the period that any naval medical or dental officer or Ensign (HP) is receiving training in a civilian institution

within your district should indicate that such officer was under instruction during this period.

2. A letter from the institution in which the officer is receiving training, giving an appraisal of his progress during the period of training at the institution, should be obtained for use in completing the Fitness Report Form. Inasmuch as there may exist considerable variation in the criteria used by the heads of civilian institutions in their letter reports, each such letter received shall be carefully evaluated in transposing to the element headings of the Fitness Report Form, keeping in mind the possibility that the institution concerned may be comparing the trainee with specialists of long experience. Appropriate comments as necessary should be supplied in Section 12 of NavPers Form 310A in order to reflect an evaluation more closely based upon the standards which are required of naval medical and dental officers. In each case the letter from the civilian institution shall be appended to the Fitness Report concerned and forwarded directly to the Bureau of Naval Personnel. A copy of the letter shall be forwarded to the Bureau of Medicine and Surgery (Code 3 or Code 6 for medical officers or dental officers respectively).

3. It is recommended that the District Headquarters forward blank forms (NavPers-310A) to the officer concerned for completion of parts 1 to 5 inclusive and return.

--BuMed. H. L. Pugh --BuPers. T. L. Sprague

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BUMED CIRCULAR LETTER 49-79 20 June 1949

To: All Stations

Subj: Uniform Charge for Interdepartmental Hospitalization, Fiscal Year 1950.

Refs: (a) Director, Bureau of the Budget, Exec. Office of the President ltr, to SecNav, dated 27 Aug 1948.
(b) Part IV, Chapter 1, ManMedDept, USN, 1945 Edition.
(c) Executive Order 9411, dated 23 Dec 1943.

A copy of this letter which contains information and instructions concerning the subject appears in the Navy Department Bulletin of 30 June 1949.

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BUMED CIRCULAR LETTER 49-80 22 June 1949

To: All Ships and Stations

Subj: Hospital Corps Training - Modification of Course in Clinical Laboratory Technic

Ref: (a) Catalog of Hospital Corps Schools and Courses - Revised 1944 (NavMed 367).

1. In order that the course of instruction for enlisted personnel of the Hospital Corps in Clinical Laboratory Technic currently being conducted at naval medical activities may be established on a twelve (12) months' basis, it is directed that the present six (6) months' curriculum be extended to twelve (12) months beginning with the classes which entered the Naval Medical School, NNMC, Bethesda, Md., 18 April 1949, the U. S. Naval Hospital, Oakland, Calif., on 17 January 1949, and the U. S. Naval Hospital, Long Beach, Calif., on 24 January 1949. Classes currently in session and due to graduate prior to 1 October 1949, shall be extended to graduate on or about that date.

2. The curricula will follow the subjects outlined in the Catalog of Hospital Corps Schools and Courses as revised insofar as practicable, with the total hours of instruction extended from 960 to 1920, consisting of forty-eight (48) weeks of forty hours each. --BuMed. C. A. Swanson

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BUMED CIRCULAR LETTER 49-81

Note: This letter is RESTRICTED.

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BUMED CIRCULAR LETTER 49-82 28 June 1949

To: Distribution List

Subj: Bureau of Employees' Compensation Forms C.A. 10 and C.A.-11 (Revised), Information for Federal Employees

It is stated in this letter (1) that the Bureau of Employees' Compensation has requested BuMed to inform all activities under its management control that Form C.A. 10 and Form C.A.-11 (Revised) are available and (2) directs addressees to obtain a supply of these forms for posting on bulletin boards and issue to individual civilian employees in order that all civilian employees may be informed of their rights and benefits.

BUMED CIRCULAR LETTER 49-83 6 July 1949

To: All Holders of the Manual of the Medical Department

Subj: Advance Change 3-14, MMD.

Encl: 1. (HW) Subject Change

1. The enclosed Advance Change 3-14 is effective immediately. It shall be recorded on the "Record of Changes" page in the Manual. The individual paragraph changes are to be inserted in their proper places in the Manual text. --BuMed. C. A. Swanson

Note: This letter together with the enclosure which consists of 3 pages will be distributed as soon as the enclosure is received from the printers.

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NAVY DEPARTMENT
BUREAU OF MEDICINE AND SURGERY
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

Permit No. 1048
NavMed-369 - 5/49 - 27,240

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